

Application No. 10/723,619
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

RE: THE ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claims 12-14 and 18 is respectfully acknowledged.

Claim 12 has been amended to be rewritten in independent form to include all of the limitations of its parent claim 1.

In addition, claims 12 and 18 have been amended to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put them in better form for issuance in a U.S. patent.

Still further, new claims 19 and 20 have been added to recite the subject matter of claims 5 and 6 depending from amended independent claim 12.

No new matter has been added, and no new issues with respect to patentability have been raised.

Accordingly it is respectfully requested that the amendments to claims 12 and 18 and the addition of claims 19 and 20 be approved and entered, and it is respectfully submitted that amended independent claim 12 and claims 18-20 depending therefrom are now in condition for immediate allowance.

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RE: THE AMENDMENTS TO CLAIMS 1-11 and 17

Claim 1 has been amended to clarify the features of the present invention whereby $|CTE| \geq 5(\%)$, and whereby CTC and CTE have a cancelling effect on each other. See the disclosure in the specification at, for example, page 16, line 22 to page 17, line 12 and Tables 1-3.

In addition, claims 1-12 and 17 have been amended to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put them in better form for issuance in a U.S. patent.

No new matter has been added, and it is respectfully requested that the amendments to claims 1-11 and 17 be approved and entered.

THE PRIOR ART REJECTION

Claims 1-7 and 17 were rejected under 35 USC 103 as being obvious in view of USP 5,016,028 ("Temple"), and claims 8-11 were rejected under 35 USC 103 as being obvious in view of the combination of Temple and USP 6,059,406 ("Richtsmeier et al"). These rejections, however, are respectfully traversed with respect to the claims set forth hereinabove.

According to the present invention as recited in amended independent claim 1, an inkjet recording head is provided in which $|CTC + CTE| \leq 10(\%)$ and $|CTE| \geq 5(\%)$, where CTC is a

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crosstalk between ink channels in one group of ink channels due to a compliance ratio of the plurality of sidewalls to the ink in the plurality of ink channels, and CTE is a crosstalk between ink channels in one group of ink channels due to a leak of an electric field caused by the electric voltage applied to the plurality of electrodes is CTE. In addition, according to the present invention as recited in amended independent claim 1, the crosstalk CTC and CTE have a canceling effect on each other.

With this structure, even when the crosstalk CTE is relatively large, the effect of CTE is canceled by the effect of CTC to maintain the total effect of crosstalk within a predetermined level ($|CTC + CTE| \leq 10 (\%)$). In this way, stable ink ejection is ensured by the structure of the claimed present invention, even in cases where the effect of CTE is relatively large ($|CTE| \geq 5 (\%)$).

On page 4 of the Office Action, the Examiner asserts that Temple discloses that it is necessary to minimize crosstalk, and therefore, the Examiner contends that the claimed feature that $|CTC + CTE| \leq 10 (\%)$ would have been obvious.

It is respectfully pointed out, however, that Temple does not disclose a relationship between CTC and CTE. Indeed, it is respectfully submitted that Temple merely discloses providing the electrodes 34, which extend from the tops 22 of the walls 16, at a location "well short" of the bottom surface 18 of the channels,

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so as to decrease or eliminate fringe field components at the root of the walls. See Fig. 2 and column 4, lines 5-19 of Temple. And it is respectfully pointed out that according to Temple, "[p]ressure crosstalk...can be avoided by an offset form of channel arrangement" (column 1, lines 53-57).

By contrast, according to the structure of the claimed present invention, the electrode can be arranged on the sidewalls at the bases of the channels as shown in Fig. 2(a) to effectively operate the channels, and as described above, even when the effect of CTE is relatively large ($|CTE| \geq 5(\%)$), CTC cancels the crosstalk to a predetermined level ($|CTC + CTE| \leq 10(\%)$) to ensure stable ink ejection.

It is respectfully submitted that Temple does not at all disclose, teach or suggest providing an ink jet head in which $|CTC + CTE| \leq 10(\%)$ and $|CTE| \geq 5(\%)$, in the manner of the present invention as recited in claim 1.

And it is respectfully submitted, moreover, that to arrange the electrode well short of the bottom surfaces, as taught by Temple, would likely result in inefficiency of the electrode effect.

In view of the foregoing, it is respectfully submitted that the present invention as recited in amended independent claim 1, as well as claims 2-11, and 17 depending therefrom, clearly

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patentably distinguishes over Temple and Richtsmeier, taken
singly or in combination, under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the
passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or
recommendations, the Examiner is invited to telephone the
undersigned for prompt action.

Respectfully submitted,



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